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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,728	09/17/2001	Kenichi Miyoshi	L9289.01190	8966
7590	12/14/2004		EXAMINER	
Stevens Davis Miller & Mosher 1615 L Street NW Suite 850 Washington, DC 20036			HOOSAIN, ALLAN	
			ART UNIT	PAPER NUMBER
			2645	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/936,728	MIYOSHI, KENICHI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Allan Hoosain	2645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### **Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 17 September 2001.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-9 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-9 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 17 September 2001 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All   b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/17/01.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_ .  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_ .

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by **Kobayakawa et al.** (US 6,064,338).

As to Claims 1,7-9, with respect to Figures 1 and 3, **Kobayakawa** teaches a radio receiving apparatus comprising:

a first calculation section, 33, for calculating reception weighting factors with respect to received signals received by the respective antenna element composing an adaptive array antenna (Figure 3);

an arrival direction estimation section, 31, for estimating directions of arrival of said received signals (Figure 3);

a second calculation section, 4, for calculating weighting factors for a replica signal generation in accordance with said reception weighting factors and said directions of arrival (Figure 3);

a replica signal generator, 5, for generating replica signals of each of said received signals using said weighting factors for a replica signal generation (Figure 3); and an eliminator, 6, for eliminating said replica signals from said received signals (Figure 3).

As to Claim 2, **Kobyakawa** teaches the radio receiving apparatus according to Claim 1, wherein:

    said first calculation section calculates reception weighting factors by which a radiation pattern is formed in such a way that a null point is directed to a direction where an interference signal source exists (Figure 8 and Col. 11, lines 24-39).

As to Claim 3, **Kobayakawa** teaches the radio receiving apparatus according to Claim 1, comprising:

    a plurality of processors each having said first calculation section, said arrival direction estimation section, and said eliminator, as a multistage (Figure 3).

As to Claim 4, **Kobayakawa** teaches the radio receiving apparatus according to Claim 3, wherein:

    in the processor of a latter stage,  
    said first calculation section calculates the reception weighting factors with respect to the signals obtained by eliminating the replica signals from the received signals by said eliminator in a preceding stage, whereby updating the reception weighting factors sequentially (Col. 11, lines 23-25).

As to Claim 5, **Kobayakawa** teaches the radio receiving apparatus according to Claim 3, wherein:

in the processor of a latter stage,  
said arrival direction estimation section estimates the directions of arrival of the signals obtained by eliminating the replica signals from the received signals by said eliminator in a preceding stage (Col. 10, line 63 through Col. 11, line 6).

As to Claim 6, **Kobayakawa** teaches the radio receiving apparatus according to Claim 5, wherein:

in the processor of a latter stage,  
said arrival direction estimation section estimates the directions of arrival using an average value of calculated steering vectors in a given interval (Col. 11, lines 45-60).

### *Conclusion*

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Huang** (US 6,385,185) teaches generating coherent channel estimates for signals received at a base station.

**Uesugi et al.** (US 6,526,271) teach a system for improving system capacity using signal cancellation.

4. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231  
or faxed to:

(703) 872-9314, (for formal communications intended for entry)

Or:

(703) 306-0377 (for customer service assistance)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Allan Hoosain** whose telephone number is (703) 305-4012. The examiner can normally be reached on Monday to Friday from 8 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Fan Tsang**, can be reached on (703) 305-4895.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

*Allan Hoosain*  
**Allan Hoosain**  
**Primary Examiner**  
**12/10/04**